FIRE RETARDANT CONSTRUCTION FOR MATTRESS ASSEMBLY

Field of the Invention

This invention relates to the field of mattresses having a fire retardant construction comprising a mattress assembly having an inner cushioning member, top and bottom mattress covers and a surrounding border strip extending around the periphery of the mattress between the top mattress cover and the bottom mattress cover. In the present invention, the peripheral border strip extending around the periphery of the mattress is secured to the fabric flanges of the top and bottom mattress covers by tiny releasable hook and loop fastening members. The fire retardant construction includes a first peripheral welt or cylindrical member somewhat in the form of a lip having an enlarged diameter extending around the periphery of the upper peripheral edge of the peripheral border strip and a second peripheral welt or cylindrical member somewhat in the form of a lip having an enlarged diameter extending around the periphery of the lower peripheral edge of the peripheral border strip. Such welt or enlarged cylindrical member can be continuous length of rope enclosed within a folded over portion of the mattress fabric. When the peripheral border strip is in place on the mattress, the first peripheral welt of the border strip contacts and presses against a corresponding welt provided on the fabric flange of the top mattress cover positioned thereon to face the first

peripheral welt when the border strip is in place on the mattress, and the second peripheral welt of the border strip contacts and presses against a corresponding welt provided on the fabric flange of the bottom mattress cover positioned thereon to face the second peripheral welt when the border strip is in place on the mattress.

Background of the Invention

Relevant prior art of which the inventor is aware is set forth in the following patents discovered during his searches for prior art.

Patent No. 5,214,809 discloses an articulated mattress for an adjustable bed which has hinge portions between mattress sections for limited pivotal movement of one section relative to another.

Patent No. 5,040,255 discloses a cushion or mattress structure comprising a box structure with side, top and bottom walls of foam material, and cavity within the box to receive encased springs.

Patent No. 4,956,884 discloses a modular box spring mattress comprising a plurality of plate sub units in which coil springs are received and held by flexible retaining arms. The sub units have cooperative coupling structures to hold adjacent sub units together.

Patent No. 4,868,941 discloses an assembled mattress having an upper sheet with integrally formed sleeves or bellows extending downward and a lower sheet with integrally formed sleeves or bellows extending upward, with individual

coil springs seated in each of the sleeves or bellows.

Patent No. 2,547,840 discloses a sectional mattress comprising three separate sections positioned end to end, with one end of a coil spring connected at each end of the middle section and on both sides thereof, having the other end of each coil spring connected to the adjacent mattress section at each opposite end of the middle section.

Patent No. 2,446,775 discloses an innerspring mattress construction made up of sections which are glued together along facing end walls to make up a completed mattress.

Patent No. 2,249,266 discloses a combined chair and bed having a mattress like coil spring cushion supported on a hinged frame which folds down into a bed and angularly to form a chair in one position and a recliner in another.

Patent No. 2,216,991 discloses three mattress units which are connected end to end to make a complete mattress. The units are connected by a transverse cylindrical bar insert on one unit which is received in a sleeve have a split cylindrical wall around its through passageway on the adjacent unit.

Patent No. 1,915,674 discloses a coil spring assembly for making cushions, comprising four or more coils in a row connected by an elongated endless loop of twisted wire which includes one elongated strand connected to one side of each coil in the row and a second parallel strand connected to the opposite side of each coil in the row, such rows of coils in turn being connected to adjacent rows of coils by

C-wires or fasteners known as hog rings.

Patent No. 1,459,540 discloses a sectional mattress comprising three separate sections that are laid end to end to make up a complete mattress and can be interchanged in their relationship to each other. The innersprings within each section are encased in bags.

The inventor's own U.S. Patent No. 5,435,026 discloses a do-it-yourself type of mattress which can be put together by the customer after purchasing the necessary component parts.

The inventor's own U.S. Patent No. 5,471,688 discloses a modular innerspring assembly for a mattress and a modular box spring assembly on which the mattress is placed.

The inventor's own U.S. Patent No. 5,485,639 discloses an S-shaped metal connecting clip having a spring characteristic to more easily connect the border wire around the top and bottom of an innerspring assembly to the top and bottom coils of adjacent coil springs.

The inventor's own U. S. Patent No. 5,644,811 discloses a mattress having access to materials sandwiched between the mattress covers and the innerspring or other innercushioning member.

Summary of the Invention

The present invention constitutes an improvement over the prior art in that the border strip around the periphery of the mattress assembly includes a fire retardant construction. The fire retardant construction includes a

first continuous welt or cylindrical enlargement along the upper edge of the border strip held in close contact against a corresponding continuous welt or cylindrical enlargement along the facing portion of the fabric flange hanging down from the top mattress cover, and a second continuous welt or cylindrical enlargement along the lower edge of the border strip held in close contact against a corresponding continuous welt or cylindrical enlargement along the facing portion of the fabric flange extending upwardly from the bottom mattress cover.

In one embodiment, a peripheral retaining band has a width corresponding to the peripheral side wall dimension of the mattress or innercushioning member. The retaining band usually has an outwardly facing surface covered by the same material as the outwardly facing surfaces of the top and bottom mattress covers. On the inwardly facing surface, the retaining band includes tiny hook or loop fasteners of the Velcro type to releasably interconnect with corresponding tiny hook or loop fasteners on the top and bottom mattress covers or on the fabric flanges of the top and bottom mattress covers.

The retaining band can also be a continuous length of material, preferably having some elasticity, and slipped over the innercushioning member as well as over the fabric flanges of the top and bottom mattress covers in place on the innercushioning member. The mattress may otherwise be of the traditional mattress construction, having an

innercushioning member such as an innerspring assembly, cushioning material over the upper and lower surfaces of the innerspring assembly, a mattress cover over such cushioning materials on both surfaces, with the fabric flange of the top mattress cover extending downwardly along and around the peripheral side wall of the mattress assembly and the fabric flange of the bottom mattress cover extending upwardly therealong and therearound. The difference between the present invention and the prior art is that the fabric flanges of the top and bottom mattress covers have fire retardant welts positioned thereon to contact and press against corresponding fire retardant welts on the inner surface of the peripheral border strip when the tiny fastening hooks and loops of the border strip and mattress covers are pressed together to releasably interconnect the border strip with the mattress covers.

Brief Description of the Drawing

Fig. 1 is a side elevation view of a mattress in accordance with this invention in which the middle portion has been broken away, and in which portions of the upper and lower edges of the peripheral band extending around the mattress have also been broken away to illustrate a peripherally extending rope that is enclosed within folded over portions of the mattress fabric along both the upper and lower edges of the peripheral band.

Fig. 2 is a section view taken on line 2 - 2 of Fig. 1, but with a middle portion of the mattress as seen in this section view broken away.

Description of Preferred Embodiment

A mattress assembly 2 in accordance with the present invention comprises an innercushioning assembly such as an innerspring 4, a top mattress cover 6, a bottom mattress cover 8, and a peripheral border strip 10 in the form of an elongated band 12 that extends around the entire periphery 14 of the mattress assembly 2. The elongated band 12 has a first peripherally extending strip 16 of tiny releasable hook fastening members 18 just below the upper edge 20 of the inwardly facing surface 22 of the elongated band 12, and a second peripherally extending strip 24 of said tiny releasable hook fastening members 18 just above the lower edge 26 of such inwardly facing surface 22 of the elongated band 12.

The elongated band 12 has a first peripherally extending welt or cylindrical enlargement such as a fabric enfolded rope 17 along the upper edge 20 of the elongated band 12 just above the peripherally extending strip 16 having the tiny releasable hook fastening members 18. The elongated band 12 also has a second peripherally extending welt or cylindrical enlargement such as a fabric enfolded rope 25 along the lower edge 26 of the elongated band 12 just below the peripherally extending strip 24 having the tiny releasable hook fastening members 18. The rope 17 and 25 may be a continuous length of rope made of hemp or comparable rope making material, having a

diameter of one-eighth of an inch to One-quarter of an inch.

The first peripherally extending strip 16 of releasable hook fastening members 18 releasably interconnect with corresponding tiny releasable loop fastening members 42 secured to the outwardly facing surface 44 of the fabric flange 46 and extends around the periphery of the top mattress cover 6 hanging downwardly therefrom. A peripherally extending welt or cylindrical enlargement 43 is secured to the outwardly facing surface 44 of the fabric flange 46 just above the tiny releasable loop fastening members 42, positioned to face and firmly contact the welt 17 around the upper edge of the elongated peripheral band 12.

The second peripherally extending strip 24 of such releasable hook fastening members 18 releasably interconnect with corresponding tiny releasable loop fastening members 42 secured to the outwardly facing surface 50 of the fabric flange 52 and extends around the periphery of the bottom mattress cover 8 projecting upwardly therefrom. A peripherally extending welt or cylindrical enlargement 53 is secured to the outwardly facing surface 50 of the fabric flange 52 just below the tiny releasable loop fastening members 42 around the fabric flange 52, positioned to face and firmly contact the welt 25 around the lower edge of the elongated peripheral band 12.

When the welt 17 along the upper edge of the elongated peripheral band 12 is in place and in firm contact with the

corresponding welt 43 of the fabric flange of the top mattress cover, and the welt 25 along the lower edge of the elongated peripheral band 12 is in place and in firm contact with the corresponding welt 53 of the fabric flange 52 of the bottom mattress cover, held securely in place by the respective releasable hook and loop fastening members, the welt 17 in firm contact with its corresponding welt 43 and welt 25 in firm contact with its corresponding welt 53 provide a fire retardant construction by substantially preventing oxygen from reaching interior portions of the mattress to thereby retard and prevent ignition of materials in the interior of the mattress.

The mattress having the fire retardant construction in accordance with this invention has passed a mattress fire prevention test commonly used as a standard in the mattress industry for mattresses used in public buildings. That is the ``Flammability Test Procedure for Mattresses For Use in Public Buildings'' described in Technical Bulletin 129 of the State of California which is available to the public, including on the Internet. The purpose of such test is to determine the burning behavior of mattresses used in public occupancy facilities, such as hospitals and other health care facilities, old age convalescent homes, boarding houses, college dormitories, residence halls and the like. An elongated propane gas burner with spaced apart apertures is positioned parallel to the bottom horizontal surface of

the mattress, one inch from the vertical side panel of the mattress, and ignited. The testing continues until (1) all combustion has ceased, (2) one hour of testing has elapsed or (3) flashover of the mattress being tested appears inevitable.